March 12, 1951.

Dr. C. W. Miller,
Department of Medicine,
University of Chicago,
Chicago 37, Illinois.

Dear Dr. Miller:

I have been looking at the paired cultures from mice recently sent me to see whether the MB cultures could be identified with the coli from feces. #18 and 19 are clearly different, on the basis of reaction to sucrose and xylose on EMB, and the production of a colicin by #18 and not 19. The components of the other pairs, however, (5-6; 29-30; 31-32) cannot be distinguished by any of the tests used. However, as all of these cultures were resistant to all of the phages (except T2 and T4, with indecisive reactions) and colicins tested, it is possible that further differentiation would be possible. However, I think it very likely that the MB and F isolates were of common origin. On the other hand, the different pairs were distinct from each other: 5-6: Su+ Ck- (colicin-negative); 29-30: Su++ Ck-; and 31-32 Su-Ck+. I found sucrose EMB to be the best single medium to differentiate different isolates. I am not clear why these last two were both sent, as they are recorded as both coming from the MB of the same animal.

What I had in mind with regard to phage typing may be based upon a false premise. In our talk you referred to the recovery of virulent Proteus from MB after irradiation, but that you could not trace these to comparable gut organisms. Does the same hold true for coliforms? If so, I thought it might be possible to trace a virulent coli from MB to a non-virulent enteric coli by phage typing, etc. If you had the potential pathogen in hand, it would of course be easier to analyse your result. If the MB coli are not different in virulence from the fecal coli, there is no reason whatever to doubt the identity of the components of the pairs mentioned above. If there is some point to this type of study, Aaron Novick has the full set of phages as well as the colicin-producing cultures (from Frederiq), and I am sure he will be glad to consult with you about it.

Your #36 is curious: a very highly mutable maltose-negative, as can easily be seen on EMB maltose agar. I have been running into a number of these; they may not have been recognized hitherto because they would be scored as positive or at least as slightly delayed fermenters in tube tests. By the way, I read that you recovered "Paracolobactrum" even more often than E. coli in MB. We are testing these along with coli, and will be happy to have these too.

Sincerely,

Joshua Lederberg